

## II. AMENDMENTS TO THE CLAIMS:

### Listing of Claims:

The following listing of claims should be entered to replace all prior listings of claims in the application. In accordance with Rule 121, the status of each claim is indicated parenthetically. In this regard, please note that the brackets in claims 49 and 60 are intended to be part of the claim and do not indicate a deletion. As can be seen in this listing, claims 38 and 67 have been amended, claim 66 has been cancelled and claims 39, 45-54, and 57-59 remain unchanged. Claims 38, 42-54, 57-59, 63-64, and 67 remain in the application.

#### Claims 1-37 (Cancelled)

#### 38. (Currently amended)

A method of freezing sex-selected sperm cells, comprising:

- (a) obtaining sperm cells of a species of mammal;
- (b) sorting said sperm cells, without the presence of protective compounds in seminal plasma, and based upon sex-type ~~using flow cytometry~~ to create a collection of sex-selected sperm cells;
- (c) cooling said sex-selected sperm cells;
- (d) isolating at least some of said sex-selected sperm cells to create a collection of isolated sex-selected sperm cells;
- (e) suspending at least some of said isolated sex-selected sperm cells in an extender to at least about 5 million per milliliter of extender to at least about 10 million per milliliter of extender;
- (f) freezing said isolated sex-selected sperm cells in said extender; and
- (g) thawing said isolated sex-selected sperm cells to provide fertile sex-selected sperm cells.

#### 39. (Previously presented)

The method of freezing sex-selected sperm cells as described in claim 38, wherein said

sperm cells from said species of said male mammal are selected from the group consisting of bovine sperm cells and equine sperm cells.

40. (Withdrawn)

The method of freezing sperm cells as described in claim 39, wherein said step of isolating at least some of said sex-selected sperm cells comprises isolating a number of bovine sperm cells between about 300,000 and about 3,000,000.

41. (Withdrawn)

The method of freezing sperm cells as described in claim 39, wherein said step of isolating at least some of said sex-selected sperm cells comprises isolating a number of bovine sperm cells of no more than about 1,000,000.

42. (Previously presented)

The method of freezing sex-selected sperm cells as described in claim 38, wherein said sperm cells from said species of said male mammal comprise equine sperm cells.

43. (Previously presented)

The method of freezing sex-selected sperm cells as described in claim 42, wherein said step of isolating at least some of said sex-selected sperm cells comprises isolating a number of equine sperm cells between about 1,000,000 million and about 25,000,000.

44. (Previously presented)

The method of freezing sex-selected sperm cells as described in claim 42, wherein said step of isolating at least some of said sex-selected sperm cells comprises isolating a number of equine sperm cells of no more than about 5,000,000.

45. (Previously presented)

The method of freezing sex-selected sperm cells as described in claim 38, wherein said step of cooling sex-selected sperm cells comprises reducing the temperature of said sex-selected sperm cells to about 5°Celsius.

46. (Previously presented)

The method of freezing sex-selected sperm cells as described in claim 45, wherein said step of reducing the temperature of said sex-selected sperm cells comprises reducing the temperature of said sex-selected sperm cells over a period of about 60 minutes to about 240 minutes.

47. (Previously presented)

The method of freezing sex-selected sperm cells as described in claim 38, wherein said extender further comprises a component which maintains osmolality and buffers pH.

48. (Previously presented)

The method of freezing sex-selected sperm cells as described in claim 47, wherein said component which maintains osmolality and buffers pH is selected from the group consisting of a buffer comprising a salt, a buffer containing a carbohydrate, and any combination thereof.

49. (Previously presented)

The method of freezing sex-selected sperm cells as described in claim 47, wherein said component which maintains osmolality and buffers pH is selected from the group consisting of sodium citrate, Tris[hydroxymethyl]aminomethane, 200mM Tris[hydroxymethyl]aminomethane, 175 mM to 225mM Tris[hydroxymethyl]aminomethane, 200 mM Tris[hydroxymethyl]aminomethane/65mM citric acid monohydrate, 175 mM to 225mM Tris[hydroxymethyl]aminomethane/50mM to 70mM citric acid monohydrate, N-Tris [hydroxymethyl]methyl-2-aminoethanesulfonic acid, 200 mM Tris[hydroxymethyl]methyl-2-aminoethanesulfonic acid, 175 mM to 225 mM Tris[hydroxymethyl]methyl-2-aminoethanesulfonic acid, 200 mM Tris[hydroxymethyl]methyl-2-aminoethanesulfonic acid/65 mM citric acid monohydrate, 175 mM to 225 mM Tris[hydroxymethyl]methyl-2-aminoethanesulfonic acid/50mM to 70 mM citric acid monohydrate, monosodium glutamate, milk, HEPES buffered medium, and any combination thereof.

50. (Previously presented)  
The method of freezing sex-selected sperm cells as described in claim 47, 48, or 49, wherein said extender has a pH in the range of about 6.5 to about 7.5.
51. (Previously presented)  
The method of freezing sex-selected sperm cells as described in claim 50, wherein said extender further comprises a cold shock protectant.
52. (Previously presented)  
The method of freezing sex-selected sperm cells as described in claim 51, wherein said cold shock protectant is selected from the group consisting of egg yolk, 20% egg yolk, 15% to 25% egg yolk, an egg yolk extract, milk, a milk extract, casein, albumin, lecithin, and any combination thereof.
53. (Previously presented)  
The method of freezing sex-selected sperm cells as described in claim 51, wherein said extender further comprises an energy source.
54. (Previously presented)  
The method of freezing sex-selected sperm cells as described in claim 53, wherein said energy source is selected from the group consisting of a saccharide, glucose, fructose, 56 mM fructose, 45mM to 60mM fructose, mannose, and any combination thereof.
55. (Withdrawn)  
The method of freezing sex-selected sperm cells as described in claim 53, wherein said extender further comprises an antibiotic.

56. (Withdrawn)  
The method of freezing sex-selected sperm cells as described in claim 55, wherein said antibiotic is selected from the group consisting of tylosin, gentamicin, lincomycin, lincospectin, spectinomycin, penicillin, streptomycin, and any combination thereof.
57. (Previously presented)  
The method of freezing sex-selected sperm cells as described in claim 47, 51, 53, or 55, wherein said extender further comprises a cryoprotectant.
58. (Previously presented)  
The method of freezing sex-selected sperm cells as described in claim 57, wherein said cryoprotectant is selected from the group consisting of disaccharides, trisaccharides, and any combination thereof.
59. (Previously presented)  
The method of freezing sex-selected sperm cells as described in claim 57, wherein said cryoprotectant is selected from the group consisting of glycerol, 6% glycerol, between 5% to 7% glycerol, dimethyl sulfoxide, ethylene glycol, propylene glycol, and any combination thereof.
60. (Withdrawn)  
The method of freezing sex-selected sperm cells as described in claim 38, wherein the extender in which at least some of said sex-selected sperm cells are suspended comprises glycerol, sodium citrate, Tris[hydroxymethyl]aminomethane, egg yolk, fructose, and one or more antibiotics.
61. (Withdrawn)  
The method of freezing sex-selected sperm cells as described in claim 38, wherein the extender in which at least some of said sex-selected sperm cells are suspended comprises glycerol, sodium citrate, egg yolk, and one or more antibiotics.

62. (Withdrawn)

The method of freezing sex-selected sperm cells as described in claim 38, wherein the extender in which at least some of said sex-selected sperm cells are suspended comprises glycerol, egg yolk, milk, fructose, and one or more antibiotics.

63. (Previously Presented)

The method of freezing sex-selected sperm cells as described in claim 38, further comprising the step of equilibrating at least some of said sex-selected sperm cells suspended in said extender to a cooler, non-freezing temperature for a period of time prior to freezing over a period of about 1 hour to about 18 hours.

64. (Previously Presented)

The method of freezing sex-selected sperm cells as described in claim 59, further comprising the step of equilibrating at least some of said sex-selected sperm cells suspended in said extender to a cooler, non-freezing temperature for a period of time prior to freezing over a period of not greater than 6 hours.

65. (Withdrawn)

A frozen sex-selected sperm sample in accordance with the method of claim 38.

66. (Canceled)

67. (Withdrawn-Currently Amended)

The method of freezing sperm cells as described in ~~claim 66~~ claim 38, wherein said step of freezing said sex-selected sperm cells in said extender comprises freezing a number of bovine sperm cells between about 300,000 and about 5,000,000.